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The Education Papers

Let's Walk before We Run

Cautionary Advice on Childcare

John Richards
Matthew Brzozowski

In this issue...

Rather than launching universal childcare programs, say the authors, governments should ensure access to childcare for "at risk" families likely to be disadvantaged in terms of preparing children for formal K-12 schooling.

The Study in Brief

The appropriate role for childcare — non-parental education and care of pre-school children — has become a major source of political debate. One reason is the dramatic rise in labour force participation over the last generation by mothers with young children. Another is the debate between defenders of at-home parenting and institutional childcare. A third source of controversy turns around results from studies of the benefits derived from childcare. This study sidesteps the ideological or emotional issues in the debate and examines the available evidence from North American experience with childcare to arrive at policy recommendations for Ottawa and the provinces.

First, it surveys recent findings of recent cost-benefit analyses on childcare. Studies consistently show that childcare programs induce more mothers to enter the labour force. The income earned by these additional workers is a benefit. The most important measurable benefit for children is improved school performance in subsequent stages of education. Most studies find significant benefits in early grades, but a fading of benefits in later grades.

As with the benefits, there are two broad categories of costs. Extrapolating the cost of the Quebec system of childcare centres suggests an annual cost of at least $8 billion for a Canada-wide system. However, childcare is a labour-intensive service, and changes in the ratio of care givers to children or in the ratio of professional to non-professional care givers could significantly raise this estimate. There are also potential psychological costs for pre-school infants and their parents, according to a recent major study of children in two-parent families in the Quebec childcare system.

Most studies showing benefits to children have been conducted in the US, on programs targeting "at risk" children in low-income or single-parent families. Even here, evidence suggests that benefits are a function of the gap between the quality of the childcare centre and the home as a learning environment. So what about "non-risk" children in stable middle-class, two-parent families? Do they benefit equivalently from childcare programs? Many insist the answer is yes, but the authors of the Quebec study say no. The Quebec results raise serious doubt as to whether, for two-parent families, the benefits of a national childcare program would outweigh the costs, both financial and psychological.

The authors of this study recommend against Ottawa's using its spending power to induce the provinces to launch universal childcare programs. Instead, they call on the provinces to ensure access to reasonable quality childcare programs for targeted categories of families likely to be disadvantaged in terms of preparing children for formal K-12 schooling.

The Authors of This Issue

John Richards is Professor, Public Policy Program, Simon Fraser University and is the Roger Phillips Scholar in social policy at the C.D. Howe Institute.

Matthew Brzozowski is Assistant Professor, Department of Economics, University of Western Ontario.

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Raising the next generation is a preoccupation of adults, and debates over how best to do it surely predate recorded history. In earlier times, religious leaders or village elders pronounced on the rights and wrongs of parenting. In our secular age, the decisions of politicians, the conclusions of academic policy analysts, and the arguments of advocates loom large. Not surprising to anyone who is a parent, the matter remains unresolved. Here in Canada, one dimension, the appropriate role for non-parental education and care of pre-school children, has become a major component of the national political dialogue. (To avoid cumbersome jargon or inelegant acronyms, we use the admittedly imprecise term "childcare" to refer to all forms of non-parental education and care of pre-school children. Where necessary, we specify more precisely.)

In the 2004 Speech from the Throne, the federal government announced its intention to promote a national program of "high quality," "universally inclusive," essentially publicly financed, childcare centres, "focused on enhancing early childhood learning opportunities." The precedent is Quebec's *Centres de la petite enfance* (CPEs), launched in 1997 at a cost to parents of $5/day/child (now raised to $7). Such a program falls within the jurisdiction of the provinces. To induce their cooperation in the national program, the 2005 federal budget offered conditional grants, amounting to $5 billion over five years. To access the funds, provincial governments agreed to launch programs consistent with the following guidelines:

> *Quality* — evidence-based, high-quality practices relating to programs for children, training and supports for early childhood educators and childcare providers, and provincial/territorial regulation and monitoring.
> *Universally inclusive* — open to all children, without discrimination.
> *Accessible* — available and affordable for those who choose to use it.
> *Developmental* — focused on enhancing early childhood learning opportunities and the developmental component of early learning and childcare programs and services. (Canada 2005, chap. 4.)

During the last federal election campaign, the Conservatives (2006, 31) described all this as a "one-size-fits-all plan to build a massive childcare bureaucracy which will benefit only a small percentage of Canadians." Instead, "let parents choose what's best for their children, and provide parents with the resources to balance work and family life as they see fit – whether that means formal childcare, informal care through neighbours or relatives, or a parent staying at home." The Conservatives promised to scrap the Liberal subsidy to provincial childcare programs and instead give $1,200 annually to parents for each child under age six. This is a promise kept. The 2006 budget proposes to phase out the Liberals' conditional grant program by March 2007, and sets forth an annual grant of $1,200 to parents for each child under age six (Canada 2006).

We thank the following for comments on earlier drafts: Yvan Guillemette, Marvin Shaffer, Bill Warburton, and Finn Poschmann. Reviewers have divergent opinions, and their investment of time and effort in review does not imply agreement with the final draft.

Canadian childcare policy is lurching from one strategy to another. Why? There are at least three underlying reasons.

First is the *Kulturkampf* between feminist childcare proponents and defenders of at-home parenting. Both in political debates and in relevant disciplines such as psychology, proponents of group socialization of children are debating those who argue for maximum parent-child interaction in early childhood.[1] If women's expectations are to be fully realized, most feminist advocates argue, women must be able to participate fully in the labour force on the same basis as men; to do so, they need high-quality, state-subsidized childcare — as Quebec has undertaken and the previous federal budget promised.

The feminist perspective on women's role in the world of paid work has effectively prevailed. Over the last half-century, female labour force participation has dramatically increased. This is so even among mothers of young children. As recently as the mid-1970s, less than one-third of mothers with children under age six were employed; as of this decade, two-thirds are. Canada crossed a symbolic benchmark in the late 1990s: over half of children ages six months to five years are now in some form of non-parental childcare (Bushnik 2006, 10).

The Conservative platform indicates that defenders of at-home parenting are attempting to draw a line in the policy sand with respect to further subsidy of childcare. Why should *our* taxes finance *your* lifestyle choice? If parents want to work outside the home, OK. However, government should not distort the choice of non-parental childcare versus at-home parenting by massively subsidizing the former. If government is to spend money helping parents raise young children, it should provide money to parents and let them decide.

A second reason for controversy — not altogether independent of the first — is the increase in divorce and in births to never-married mothers, and the response of social service agencies. The overwhelming majority of these single-parent families are headed by women, and the majority are poor. In most OECD countries, Canada included, government strategies to aid poor families with children shifted over the last two decades: less untied financial aid, more aid conditional on the parent's agreeing to work. Motivating this shift toward workfare has been concern with intergenerational welfare dependency and evidence of the positive role effect on children of working parents.[2] Financial support for single mothers, even for mothers of young pre-school children, is no longer deemed to be a right. Once children are above, say, age two, most social service ministries in Canadian provinces classify single parents as employable and aid is made conditional on their working. This shift has created an obvious demand for childcare for single-parent families. In the mid-1990s, less than 40 percent of children ages six months to five years living in single-parent families were in childcare; now 65 percent are (Bushnik 2006, 12).

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1 A prominent Canadian academic advocate of universal childcare is Fraser Mustard. See, for example, a report prepared for the Ontario government (McCain & Mustard 1999). Another prominent advocate is Martha Friendly (Doherty et al. 2003). On the other side, two recent contributors to the debate are Jean-François Chicoine and Nathalie Collard (2006). They conclude that, at least prior to age two, children should ideally be with parents.

2 A classic survey of evidence on what factors influence the probability of children in poor families succeeding in high school is that of Haveman and Wolfe (1995).

A third source of controversy turns around interpretation of rigorous evaluative studies that have produced divergent results as to the benefits derived from non-parental childcare and early childhood education. It is to this third area of controversy that we now turn.

Cost-Benefit Analyses

Public initiatives such as childcare are often subjected to cost-benefit analysis. The essence of the technique is to evaluate all costs and all benefits in each year for the duration of the initiative, keeping in mind the willingness of people to pay for the benefits or to avoid the costs. Then benefits and costs are summed over the lifetime of the initiative (discounting, such that costs and benefits far in the future are weighted less than those arising sooner). Finally, if the sum of benefits exceeds the sum of costs (both benefits and costs discounted), the initiative is deemed worthwhile. Gordon Cleveland and Michael Krashinsky (1998) have conducted the major cost-benefit study of a national childcare program in Canada. For their base case, they estimated annual benefits of $10.2 billion and costs of $7.9 billion, and hence concluded such a program makes sense.

The technique has the virtue of forcing us to think clearly about the impacts of public initiatives that can be readily evaluated, and to decide whether the hard-to-measure benefits and costs tip the balance in favour or against. Cost-benefit analysis does not eliminate discretion; it concentrates judgment on the dimensions of real uncertainty.

In the conduct of cost-benefit analyses, childcare programs generate two major categories of benefits:

Value of incremental income generated by parents who, due to childcare, choose to work outside the home. Studies consistently show that childcare programs induce more mothers to enter the labour force. The income earned by these additional workers is a benefit. Admittedly, in the case of workfare programs for single parents, entry into the labour force may not be voluntary. Cleveland and Krashinsky estimated the annual value of these increased earnings at $6.2 billion.

Enhanced education performance of children. The most important measurable benefit for children is improved school performance in subsequent stages of their education. Some studies have evaluated this benefit in terms of avoided costs: less grade repetition by the children, lower juvenile crime rates due to lower school dropout rates, and so on. Other studies have estimated the increase in expected future earnings, over their lifetimes, for children who have passed through good childcare programs. Cleveland and Krashinsky took yet another approach. They estimated the value placed on childcare by well-off parents who had recourse to it for their children; they extrapolated this to a national level. Their estimate of this benefit was $4 billion annually.

Since introduction of the Head Start program in the US in the 1960s, there have been many rigorous studies attempting to isolate the impact of childcare programs on the subsequent performance of children. Isolating the impact of childcare from all other factors of relevance is a daunting task. How good is the parenting during school years (do parents help with homework)? What is the quality of schools (is the school culture one that encourages student learning)? What are the

Box 1: *Methodological Issues*

There has been considerable debate about the appropriate methodology for assessing the impact of childcare programs. The evaluation studies summarized in the Appendix belong to two types: small-scale randomized experiments and large-scale sample studies. Neither type is perfect. Often the choice of a study design narrows down to the tradeoff between the "external validity" and the "internal validity" of a study. What follows is a brief discussion of the relative merits of both approaches. (For more in-depth analysis in the context of childcare studies, consult Barnett (1995) and Currie (2001); also a wealth of relevant information can be found in the special issue of Focus (1997) summarizing a conference on welfare reform evaluation.)

The chief advantage of controlled randomized experiments over large-scale studies is that they do not suffer from selection bias. In an experimental setting, researchers can randomly assign subjects to "treatment" and "control" groups, and thereby avoid the possibility that differences in outcomes between the groups are falsely attributed to the treatment when they should be attributed to unspecified characteristics that led particular subjects to seek treatment (childcare being the "treatment" in our case). This absence of selection bias assures the "internal validity" of the study and is often cited as an argument in favour of randomized experiments. Large-scale sample studies do not have a random control group. Instead, they compare the average outcome for those undergoing the treatment to an average outcome for some external group.

The decision to undergo "treatment" may not be random. For example, parents of children exhibiting developmental problems are more likely to enrol their children in childcare. In this case, the treatment group will disproportionately comprise children with developmental problems, who lower average outcomes. Hence, a comparison with a control population is likely to underestimate the true effects of the treatment. But the opposite may be the case. Parents who deem their children especially gifted may disproportionately choose to enrol their children in childcare. Provided there is some correlation between parents proclaiming the brilliance of their children and reality, the difference between treatment and control groups would potentially overestimate the true effect of childcare.

Based on these considerations, randomized experiments seem preferable. Unfortunately, small-scale randomized experiments often lack "external validity." Here we refer to differences between experimental setting and the real world of program implementation. First, small-sample controlled experiments may enjoy generous per child budgets that cannot be replicated on a regional or national scale. Second, there may be differences with regards to average levels of professional expertise, training, motivation, and dedication between those involved in the experiments and those likely to be employed by a national program. If this "external validity" problem is important, it helps explain why randomized experiments report higher success rates than large-scale experiments.

Yet another form of selection bias needs to be considered. The same selection process that causes some parents to reject participation in randomized pilot programs will cause them to reject a comparable universal program. Consequently, even in an ideal setting where the staff quality/dedication and per student budgets are comparable between pilot and large-scale experiment, the benefits would not be shared by all the children in the society, only by the fraction enrolled in the program.

A final source of potential selection bias is present in both types of studies. Here we point to very high attrition rates at the time of follow-up studies. It may turn out that the children (or their parents) willing to be interviewed at time of follow-up are disproportionately those who believe they benefited. Those who believe that the program did not help them may well be less inclined to participate. The untraced portion of the "treatment" group (often in excess of 50%) may therefore bias the results. High attrition rates are especially important for small sample experiments where reduced sample size may destroy statistical significance of the findings.

Table 1: *Achievement Tests for Children in High-Quality Childcare Programs, Summary of US Studies, by Grade Level at Time of Evaluation*

Grade at which students evaluated	Treatment group performance better than control, difference statistically significant	Treatment group performance better than control, difference not statistically significant	Treatment group performance similar to control
	Large-scale studies		
At grade 1	++++++		+
At grades 2-3	++++	+	+++++
At grades 4-7	++++++++	+	++++
At grades 8 and higher	++	+	++
	Small-scale studies		
At grades 4-7	++++	+++	++++
At grades 8 and higher	++		+

Notes: This table summarizes studies included in Appendix.

Each " + " indicates an evaluation outcome; several studies have more then one outcome, with each outcome listed separately. For example, if a study reports T (Treatment) = C (Control) in grades 1 and 2, the score is tallied for each relevant cell in the "grade 1" and "grades 2-3" rows. However, if a study reports, say, T = C in grades 2 and 3, then only a single score is recorded in the relevant cell of the "grades 2-3" row. Studies with relevant grades not clearly specified were omitted.

Note that the single instance where T < C for achievement scores (the Montgomery County result at grades other then grade 11) is omitted here. This result is statistically insignificant. For more detail, see Appendix.

neighbourhood effects (are teenage students subject to peer pressure to join gangs and abandon academic studies)?

One approach is to conduct small-scale experiments in which children are randomly assigned to a "treatment" group (that receives childcare) and a "control" group (that does not). This randomization avoids many sources of potential bias and provides a presumption that any statistically significant difference in outcomes between the groups is due to participation in the program. But small-scale experiments suffer from other problems. They may, for example, enjoy particularly dedicated staff and generous funding, conditions unlikely to be replicated on a large scale. Large-scale studies covering, say, an entire city or state/province may introduce bias by choice of control group, but they have the advantage of studying programs in a more representative administrative context. (For further elaboration on the methodological problems, see Box 1.)

Table 1 summarizes studies that are referred to in the Appendix. Particularly in the early years of primary school, most studies conclude that children who have passed through quality childcare programs perform significantly better than the control group of children. At higher grades, the benefits tend to fade: the proportion of studies finding significant gains for the treatment group over the control group declines.

As for the costs in any cost-benefit analysis, there are again two broad categories:

Costs of providing childcare services. In 1998, Cleveland and Krashinsky estimated total annual costs of a national childcare program at $7.9 billion.[3] This estimate is consistent with extrapolation across Canada of a program equivalent to Quebec's system of CPEs in terms of cost per capita. In 2005, the cost of the Quebec program was about $2 billion, with one-quarter provided by the $7/child/day fee and three-quarters by provincial revenues (Cleveland & Krashinsky 2004, 5; Lefebvre 2004, 54; Quebec 2005, 43). However, any such estimate must be treated with caution. Since childcare is a labour-intensive service, changes in the ratio of care givers to children or in the ratio of professional to non-professional care givers alter costs dramatically.

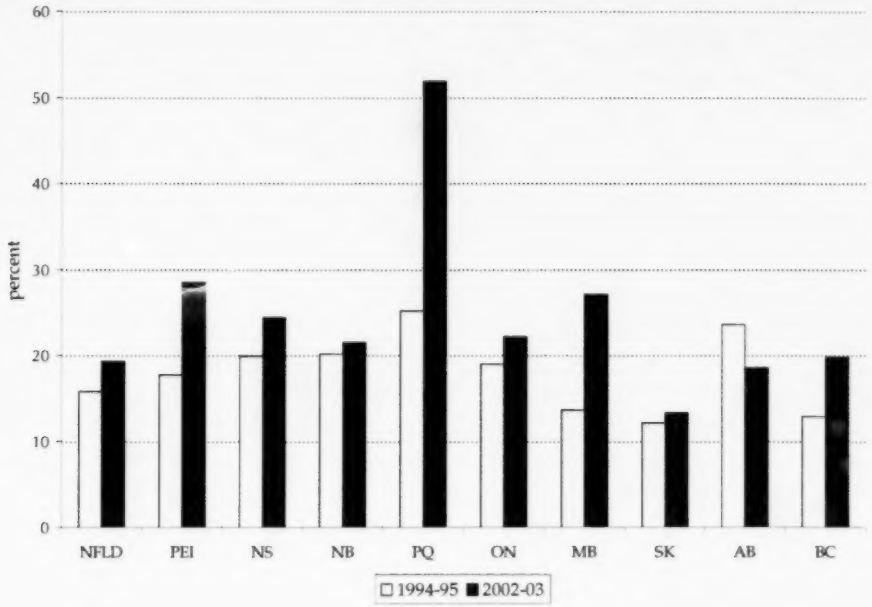
Some childcare advocates are calling upon Quebec to improve the educational quality, and hence increase the labour cost, of its program. In their recent study, Christa Japel and her colleagues (2005, 16) conclude that the non-profit CPE centres are of higher quality than the other institutional options (for-profit centres, home-based CPEs, unregulated home-based daycares). But even among the CPE centres, only 35 percent were rated as good. They stress the importance of high quality if childcare is to realize its potential. The implication is that standards be further raised. From their perspective, "the long-term benefits of investing in human capital far outweighs the costs" but, they acknowledge, an ideal program "will require a large investment of public funds" (Japel et al. 2005, 34).

Professional care givers legitimately command a higher income than informal care providers, such as those who take a few children into their homes. But unionization of employees, as in the case of Quebec CPEs, has created an additional source of rising costs. The union has become an effective monopoly with the ability to extract high wages by threats to shut down the entire system. In the summer of 2005, the union threatened to close all CPEs at the beginning of the school year, a time chosen to inflict maximum disruption on parents. To avoid such a strike, the Quebec government allocated additional revenues to the CPEs (SRC 2005).

Potential harm to children's development. Most rigorous studies showing benefits to children have been conducted in the US, on programs targeting children "at risk" due to potentially weak parenting or adverse social conditions – children of single-parent or low-income families, or children living in ghetto-like urban neighbourhoods with weak schools. But what about "non-risk" children in stable middle-class, two-parent families? Do they benefit equivalently from childcare programs? Many insist the answer is yes but the authors of an important recent

3 Cleveland and Krashinsky (1998, 47) base their cost calculations on an assumed total annual compensation per childcare worker of $36,000. For care-givers in Quebec CPEs, hourly wages in 2004 ranged between roughly $14 and $18; for managers, annual salaries ranged between $37,000 and $49,000 (Lefebvre 2004, 54). Assume a 9:1 ratio of care-givers to managers, a 37.5-hour work week, four weeks holiday, unit labour costs at the respective mid-points of the above ranges, and fringe benefits equivalent to 20 percent of unit labour costs. These assumptions yield an average 2004 cost per CPE employee of $36,500.

Figure 1: *Proportion of Children Ages 6 Months to 5 Years in Childcare Centres, by Province, 1994–95 and 2002–03*



Source: Bushnik (2006)

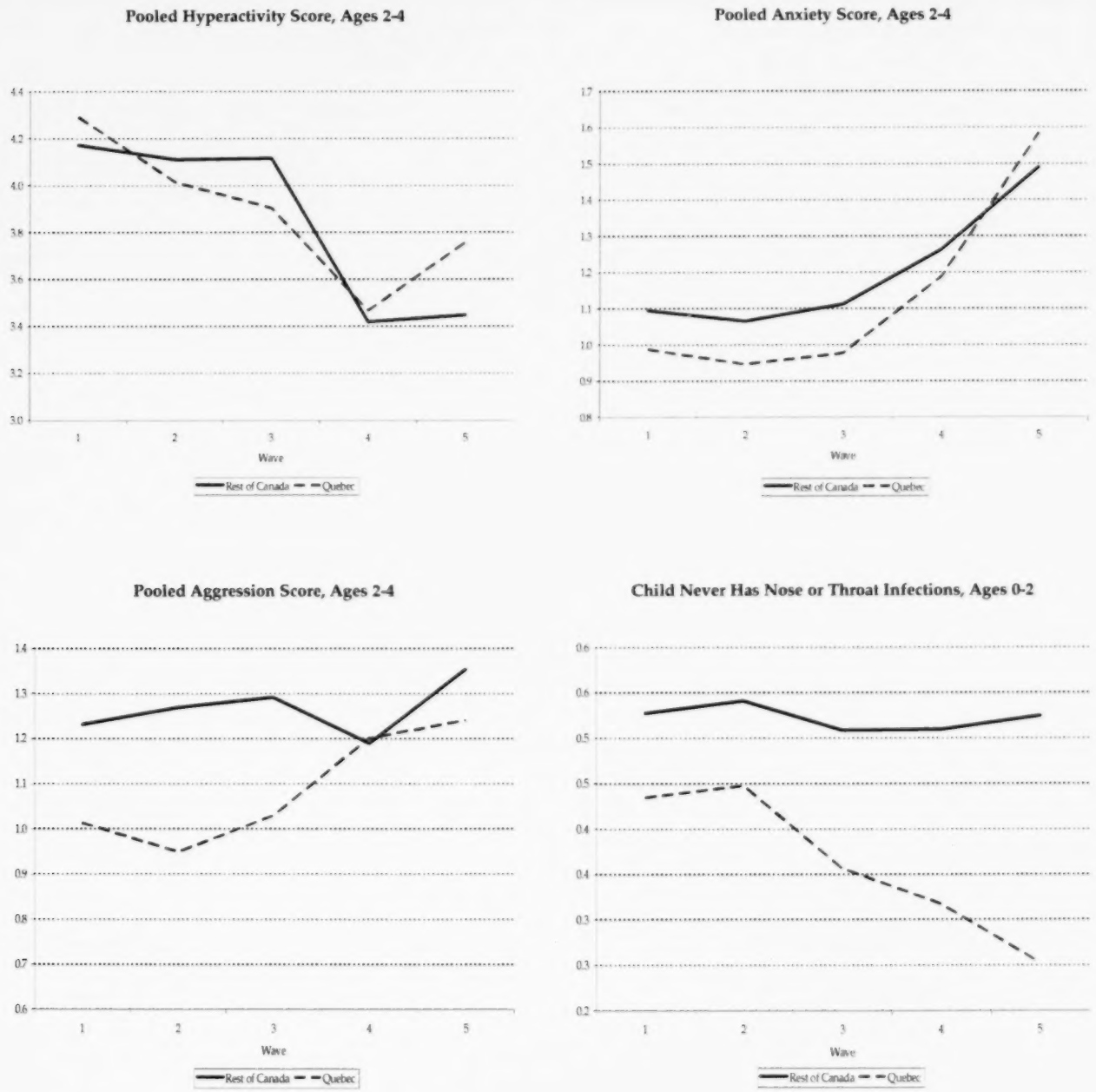
study of Quebec experience since the inauguration of CPEs say no.

As with Saskatchewan's decision to implement medicare in the early 1960s, the decision of the Quebec government to put in place a province-wide childcare program is an example of federalism's enabling large-scale social policy experimentation in one province. By the early years of this decade, over half of Quebec children ages six month to five years were in a childcare centre, a rate twice that for any other province. (See Figure 1.)

Michael Baker, Jonathan Gruber, and Kevin Milligan, authors of a recent assessment of Quebec's childcare experiment, used the data available from the National Longitudinal Study of Children and Youth (NLSCY) to conduct a large-scale study in which Quebec children ages 0 to 4 are the treatment group; the same age children in the rest of Canada are the control. The NLSCY is an ambitious undertaking, organized by Statistics Canada, to survey random samples of children in five "waves," the first conducted in 1994/95, the second in 1996/97, the third in 1998/99, the fourth in 2000/01, and the fifth in 2002/03. Each wave includes approximately 2,000 children. As the authors state, "The dataset provides information on a rich set of childcare choices as well as tracking children's development, parental and teacher evaluations, test scores, and class rankings" (Baker et al. 2005, 19).

The authors found that the introduction of CPEs brought about the expected increase in mothers' labour force participation. What has caused controversy is their conclusion about the psychological effects on children:

Figure 2: *Selected Outcomes for Children in Quebec and Rest of Canada, by "Waves"[a] of the National Longitudinal Study of Children and Youth*


Pooled Hyperactivity Score, Ages 2-4
Pooled Anxiety Score, Ages 2-4
Pooled Aggression Score, Ages 2-4
Child Never Has Nose or Throat Infections, Ages 0-2
Wave
Rest of Canada
Quebec

Source: Baker et al. (2005)

[a] The waves were conducted in the following years: wave 1 in 1994/95, wave 2 in 1996/97, wave 3 in 1998/99, wave 4 in 2000/01, wave 5 in 2002/03.

> We ... find consistent and robust evidence of *negative* [emphasis in original] effects of the policy change on child outcomes, parenting, and parent outcomes.
>
> Child outcomes are worse for a variety of parent-reported measures, such as hyperactivity, inattention, aggressiveness, motor/social skills, child health status, and illness. Parental interactions with children are worse along all measured dimensions, and there is some evidence of deterioration in parental health and a reduction in parental relationship quality. These are subjective measures, but the consistency of the results suggests that more access to childcare is bad for these children (and, at least along some dimensions, for these parents). (Baker et al. 2005, 4.)

Figure 2 reproduces a sample of their results. The figures track the scores in Quebec and rest of Canada for several measures over successive waves of the NLSCY. As measured, hyperactivity declined between the first and fifth waves, but less so in Quebec than elsewhere. Whereas Quebec children were less anxious than children elsewhere in Canada in waves prior to the CPE program, that was no longer true in 2002/03. Quebec children remained less aggressive than children elsewhere but the gap closed between the first and fifth waves of the survey. Finally, Quebec children's increased participation in childcare centres seems to have induced lots of nose and throat infections.

The authors acknowledge there to be "more benign" interpretations of their data. Perhaps, they suggest, they have documented short-term problems of adaptation, impacts that will fade over time as parents and care givers adapt. Some of their negative results seem marginal: with relatively more children in childcare, it is not surprising to find a higher incidence of infections. Arguably, this is not a cost. Quebec children are merely gaining immunity to childhood illnesses at an earlier age than children elsewhere.

The most important qualification to these results is to note that the comparison group is children from two-parent families. The authors excluded children from single-parent families because, before the introduction of the CPEs in 1997, Quebec subsidies to childcare for such families were already far more generous than elsewhere in Canada and introduction of "seven-dollar-a-day" (originally five-dollar-a-day) childcare was not a significant policy change.

Distributional Issues

Any publicly subsidized universal childcare program involves a somewhat arbitrary income redistribution. To the extent services are financed from general tax revenues, families pay roughly in proportion to family income. Those who do not use the services receive no corresponding benefit. Hence, a tax-funded program lowers their after-tax income. This group includes those without children, those families placing a high value on stay-at-home parenting, and families where the extended family is the norm. In such cases — families of many immigrant communities, for example — both parents may work in the paid labour force but rely on grandparents or other close relatives for childcare.

Another problem with nominally universal programs such as that in Quebec is that they are not universal. Participation is not mandatory as is, for example, K-12

education. Hence, even if the supply of subsidized spaces equaled the demand, a sizeable minority of parents would not use the service. In the case of Quebec, demand exceeds supply at the going price and queuing takes place.

Several analysts have documented that better-off families have been more adroit at gaining access to the spaces available than the less affluent. As of 2001, Lefebvre (2004) found that, among families with annual income above $60,000, nearly 3 in 10 of their pre-school children were in subsidized spaces; among families with incomes below $40,000, only 1 in 10. Christa Japel and colleagues (2005, 27-29) reported a similar problem of access by the poor. They used an index of socioeconomic status based on education level, occupational prestige, and family income. Families that used childcare enjoyed higher status than the families that did not, and this disparity was true for children of all ages from six months to five years. Among those families using childcare, families with status above the median were somewhat more likely than families below the median to be in childcare settings rated good to excellent. A large status disparity existed among those who used childcare settings rated inadequate. The proportion of families with above-median status in such centres was only half the proportion of families with below-median status.

Childcare: Targeted or Universal?

While no single study of an innovation as complex as childcare can hope to be definitive, the results of Baker and colleagues are important. Their study assessed what is by far the most important experiment in universal childcare in Canada; it was conducted in a methodologically rigorous manner, using an excellent data set. At the very least, their results should generate doubt as to whether, for two-parent families, the benefits of a national childcare program would outweigh the costs, both financial and psychological.

On the other hand, many studies over several decades have documented educational benefits from targeted childcare programs for children in "at risk" families. Even here, expectations should be modest. A good pre-school childcare program is not enough to guarantee that "at risk" children complete high school successfully, avoid teenage pregnancy, or distance themselves from a culture of crime.

In his survey of US childcare programs, Steven Barnett generalizes these conclusions as to when children are likely to benefit. He concludes that benefits are a function of the "gap" between the quality of the childcare centre and of the home environment. Where the "gap" is negligible or negative, the net benefits are likely to be negligible or negative:

> Benefits from programs appear to be produced via a number of different types of programs and across a number of different groups of children. Indeed, the best predictor of the size of program effects may be the size of the gap between the program and home as learning environments, rather than whether a child is a member of a particular group. Thus, effects might be expected to be largest for the most disadvantaged, though there is no evidence that meaningful effects cease if a child's family moves above the poverty line. Indeed, there is even some suggestion

> at the other end of the income spectrum that children from very well-off families may suffer from [childcare] inferior to that provided by their homes. (Barnett 1995, 43.)

The Rand Corporation published another survey of program evaluations that arrived at a similar conclusion on the importance of the "gap" between the centre and home environment (Karoly et al. 1998). For example, the Prenatal and Early Infant Program in Elmira, New York enroled 400 disadvantaged families. Each received regular home visits by nurses who, in addition to providing nursing and parenting advice, linked families to other social services. The evaluation divided between high-risk (families headed by a single parent and classified as particularly low status) and low-risk (the remainder). Among the former, average per-child benefits were estimated to be four times costs. Among the latter, per-child benefits were below costs.[4]

Recommendations and Conclusion

Based on our interpretation of the evidence, Ottawa should not be using its spending power to induce the provinces to launch universal childcare programs using the guidelines of the 2005 budget. Moreover, based on the Quebec experience, a universal program will likely fail to target adequately "at risk" children. On the other hand, programs targeted to disadvantaged families can almost certainly generate significant benefits.

In conclusion, we put forward three recommendations of a more specific nature.

Recommendation One

The provinces should assure access to reasonable quality childcare programs for targeted categories of families likely to be disadvantaged in terms of preparing children for formal K-12 schooling.

Most anti-poverty analysts in US, UK, and — to a lesser extent — Canada have concluded that the role model effect of a working parent is important in reducing intergenerational poverty, even in the case of single parents with pre-school children. If these parents are required to work as a condition for receipt of benefits, they need childcare. Writing about welfare-to-work programs in the US, Janet Currie (2001, 231) concludes: "[US] society can be thought of as having made a commitment to poor mothers that it will pay for childcare of at least mediocre quality if they work." Canada has struck a similar deal, with important differences among existing provincial programs.

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4 Capitalized using a 4 percent discount rate, benefits were restricted to those accruing to government. The most significant items arose from higher employment among the parents. This led to significant reductions in welfare payments and higher employment taxes paid. Another significant benefit was lower justice system costs due to lower projected criminal behaviour among targeted children.

Recommendation Two

Childcare centres should be located in neighbourhoods with high ratios of "at risk" families, whose children are most likely to benefit. As opposed to a universal fixed fee per child, fees should be geared to income.

Targeting is hard to do well. One means is by location of the centres. If located in low-income neighbourhoods, local low-income parents have easier access. Family income is an administratively simple but overused means of targeting. To accommodate the problem of already high effective tax rates, clawback of fee subsidies should probably not occur below an annual family income level of $30,000.[5]

Recommendation Three

Families eligible for childcare subsidy should be able to choose among: state-sponsored centres; licensed centres operated by charitable, religious, or non-profit societies; or approved for-profit firms.

Some regulation covering dimensions of quality is necessary if childcare centres are to generate positive results. Provided centres satisfy such regulations, choice is a desirable feature. Provision for parental choice is motivated by several considerations. Families with strong ties to local/ethnic/immigrant communities may be more inclined to trust a centre if it resembles the cultural setting familiar to their children. Particular centres may offer services that better meet the demands of families with atypical work schedules or of those residing in more remote geographic locations. The costs to the public purse of operating centres may be shared with the private sector through charitable donations. Finally, the existence of options assures some benefits of competition and minimizes the threat of a destabilizing system-wide disruption, such as Quebec parents faced in 2005.

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5 Ottawa and the provinces have devised generous targeted benefits for low-income families with children. Over the $20,000 — $35,000 family-income range, these benefits are aggressively clawed back. This creates a significant barrier to incremental earnings. The latest estimate of the effective tax rate (= tax rate on earnings + clawback rate on targeted benefits) over this range is above 50 percent in the case of a single parent with one child (Canada 2006, 71). For a family with two children, the effective tax rate is about 10 percentage points higher.

Appendix: *Summary Results for Childcare Evaluation Projects Conducted in the United States*

Table A1: Results for Large-Scale Evaluation Projects

Project Name	Ages of Participation, Time of Last Follow-up	School Outcomes	Methodological Concerns
Child-Parent Center (1965-77)	Entry: 3-4 years Exit: 9 years Last follow-up: Post high school	T > C* in achievement tests at grade 2 T = C in achievement tests at grade 8 T > C* for high-school graduation	School-administered tests.
Child-Parent Center (1983-85)	Entry: 3-4 years Exit: 9 years Last follow-up: Grade 7	T > C* in achievement tests at grades K to 7 T < C* in special education. T < C* for grade repetition T < C* in school dropout rate at age 20 T < C* in delinquency and crime	School-administered tests.
ETS Longitudinal Study of Head Start (1969-1970, 1970-1971)	Entry: 4-5 years Exit: 5-6 years Last follow-up: Grade 3	T > C* for achievement tests at grade 1 T = C for achievement tests at grades 2, 3	High attrition.
Head Start Family and Child Experience Survey (1997-1998)	Entry: 3-4 years Exit: 5-6 years Last follow-up: Grade 6	T > C* for achievement tests at grade 6	
NLSCM Head Start (1979- 1989)	Entry: 3-5 years Exit: 5-6 years Last follow-up: Grade varies	T > C* for achievement tests (whites and Hispanics only) T > C* for grade repetition T > C* (whites and Hispanics only) T > C* immunization rates T = C child height-for-age	
PSID Head Start (exact timing depends on program)	Entry: 3-4 years Exit: depends on program Last follow-up: adulthood (age 30 or younger)	T = C for grade repetition T > C* for high-school graduation (whites only). T = C for teen pregnancy T = C for welfare dependence T < C* for arrests (blacks only) T > C* for college education (whites only)	
Cincinnati Title I Preschool (1969-1970, 1970-1971)	Entry: 4-5 years Exit: 6 years Last follow-up: Grade 8	T > C* for achievement tests at grades 1, 5 and 8 T = C for special education at grade 8 T = C for grade repetition at grade 8	School-administered tests.
Maryland Extended Elementary Pre-K (1977-1980)	Entry: 4 years Exit: 5 years Last follow-up: Grade 8	T > C* for achievement tests at grades 3, 5 and 8 T < C* for special education at grade 8 T < C* for grade repetition at grade 8	High attrition. School-administered tests.
New York State Experimental Prekindergarten (1975-1976)	Entry: 3-4 years Exit: 5 years Last follow-up: Grade 3	T > C* for achievement tests at kindergarten T = C for achievement tests at grade 1 T = C for special education at grade 8 T < C* for grade repetition at grade 8	High attrition.

Table A1: *Results for Large-Scale Evaluation Projects, cont'd.*

Project Name	Ages of Participation, Time of Last Follow-up	School Outcomes	Methodological Concerns
Detroit Head Start and Title I Preschool (1972-1973)	Entry: 4 years Exit: 5 years Last follow-up: Grade 4	T > C* for achievement tests at grade 4	School-administered tests. Unknown sample sizes
D.C. Public Schools and Head Start (1986-1987)	Entry: 4 years Exit: 5 years Last follow-up: Grades 4 and 5	T > C* for achievement tests at grades 3 - 5 T = C for special education at grade 4 T = C for grade repetition at grade 4	High attrition.
Florida Learn to Learn and Head Start (1986-1987)	Entry: 4 years Exit: 5 years Last follow-up: Grade 6	T = C for achievement tests at grade 6 T = C for special education T = C for grade repetition	
Philadelphia School District Get Set and Head Start (1969-1970 1970-1971)	Entry: 4 years Exit: 5 years Last follow-up: Grades 4 - 8 (depending on cohort)	T = C for achievement tests at grades 4 - 8 T > C* for grade repetition	High attrition. School-administered tests.
Seattle DISTAR and Head Start (1970-1971)	Entry: 4 years Exit: 5 years Last follow-up: Grades 6 and 8	T > C for achievement tests at grades 6 and 8	High attrition. School-administered tests.
Cincinnati Head Start (1968-1969)	Entry: 4 years Exit: 5 years Last follow-up: Grade 3	T = C for achievement tests at grade 3	
Detroit Head Start (1969-1970)	Entry: 4 years Exit: 5 years Last follow-up: Grade 4	T > C* for achievement tests at grade 4	School-administered tests.
Hartford Head Start (1965-1966)	Entry: 4 years Exit: 5 years Last follow-up: Grade 6	T > C* for achievement tests at grade 6 T = C for special education T < C* for grade repetition	High attrition. School-administered tests.
Kanawha County, West Virginia Head Start (1973-1974)	Entry: 4 years Exit: 5 years Last follow-up: Grade 3	T = C for achievement tests at grade 3	School-administered tests.
Montgomery County Maryland Head Start (1970-1971, 1974-1975, 1978-1979)	Entry: 4 years Exit: 5 years Last follow-up: Grade 11	T > C* for achievement tests at grade 11 T < C for achievement tests at grades other the grade 11	High attrition. School-administered tests.
New Haven Head Start (1968-1969)	Entry: 4 years Exit: 5 years Last follow-up: Grade 3	T > C* for achievement tests at grade 1 T = C for achievement tests at grade 3 T < C for grade repetition	High attrition.

Table A1: *Results for Large-Scale Evaluation Projects, cont'd.*

Project Name	Ages of Participation, Time of Last Follow-up	School Outcomes	Methodological Concerns
Pennsylvania Head Start (1986-1987)	Entry: 3-5 years Exit: 5-6 years Last follow-up: Grade 3	T > C for achievement tests at grades 2 and 3	
Rome, Georgia Head Start (1966)	Entry: 5 years Exit: 6 years Last follow-up: Post high school	T > C* for achievement tests at grade 5 T = C for achievement tests at grade 6 and higher T < C* for special education T = C for grade repetition	School-administered tests.
Westinghouse National Evaluation of Head Start (1965-1966)	Entry: 4-5 years Exit: 5-6 years Last follow-up: Grades 1-3	T > C* for achievement tests at grade 1 T = C for achievement tests at grade 2 and 3	

Source: Adapted from Barnett (1995), Currie (2001).

Notes: The treatment group is designated T, and control group C.

T > C* (T < C*) with asterisk " * " means the outcome among the experimental group was, in a statistically significant sense, better than (worse than) the outcome for the control group. Statistical significance is usually defined such that, if the ECEC program actually had no effect, the observed event should not occur more frequently than once every 20 assessments.

T > C (T < C) without asterisk means the outcome among the experimental group was better than (worse than) the outcome for the control group, but the result was not statistically significant. T = C means the outcomes for both groups were similar.

By design, studies of the large-scale programs are non-randomized and are theoretically subject to selection bias that invalidates results. The size of the large-scale programs relative to the size of the surrounding population offers a measure of protection against sample bias.

Table A2: *Results for Small-Scale Evaluation Projects*

Project Name	Ages of Participation, Time of Last Follow-up	School Outcomes	Methodological Concerns
Carolina Abecedarian (1972-1985)	Entry: 6 weeks to 3 months Exit: 5-8 years Last follow-up: Age 15 (varies for a number of outcomes)	T > C* for achievement tests at age 15 T < C* in special education at age 15 T < C* for grade repetition at age 15 T < C*for school drop out at age 21 T > C* for college attendance at age 21 T = C for employment status at age 21	
Huston Parent-Child Development Center (1970-1980)	Entry: 1-3 years Exit: 3-5 years Last follow-up: Grades 5	T > C for achievement tests T = C for special education at grades 2 - 5 T = C for grade repetition in grades 2 - 5	Close to 50% attrition by the time of follow-up.
Infant Health and Development Project	Entry: birth (home visits), 1 year (rare) Exit: 3 years Last follow-up: Age 8	T < C* for behavioral problems at age 3 and 5 T = C for behavioral problems at age 8 T > C for (math) achievement test at age 8 T = C for special education at age 8 T = C for grade repetition at age 8	
Florida Parent Education Project (1966-1970)	Entry: 3-24 months Exit: 3 years Last follow-up: Grade 7	T > C* for (math) achievement T = C for (reading) achievement T < C* for special education at grade 7 T = C* for grade repetition at grade 7	Close to 75% attrition by the time of follow-up. Initially randomized, not randomized control groups added later.
Milwaukee Project (1968-1978)	Entry: 3-6 months Exit: 5 years Last follow-up: Grade 8	T > C for achievement tests at grade 6 T = C for special education T = C for grade repetition	Both the treatment and the control groups made up of only 20 subjects.
Syracuse Family Development Research Program (1969-1975)	Entry: 6 months Exit: 5 years Last follow-up: Grade 8	T > C* for achievement tests at grade 6 T < C* for special education T < C* for grade repetition	Close to 60% attrition by the time of follow-up. Matched not randomized Outcomes hold for girls only.
Yale Child Welfare Research Program (1968-1974)	Entry: prenatal Exit: 30 months Last follow-up: Age 10	T = C for achievement tests at grade 6 T < C for special education for boys T = C for special education for girls	Both the treatment and the control groups made up of only 18 subjects. Not randomized.
Curriculum Comparison Study (1965-1967)	Entry: 4 years Exit: 5-6 years Last follow-up: Post high school	T = C for special education T = C for grade repetition T = C for high school graduation	
Early Training Project (1962-1967)	Entry: 4-5 years Exit: 6 years Last follow-up: Post high school	T = C for achievement tests T < C* for special education at grade 12 T = C for grade repetition T = C for high school graduation	Treatment group of 44 subjects, control group of 21 subjects, Close to 25% attrition by the time of follow up in both groups.

Table A2: *Results for Small-Scale Evaluation Projects, cont'd.*

Project Name	Ages of Participation, Time of Last Follow-up	School Outcomes	Methodological Concerns
Curriculum Comparison Study (1965-1967)	Entry: 4 years Exit: 5-6 years Last follow-up: Post high school	T = C for special education T = C for grade repetition T = C for high school graduation	
Early Training Project (1962-1967)	Entry: 4-5 years Exit: 6 years Last follow-up: Post high school	T = C for achievement tests T < C* for special education at grade 12 T = C for grade repetition T = C for high school graduation	Treatment group of 44 subjects, control group of 21 subjects. Close to 25% attrition by the time of follow-up in both groups.
Experimental Variation in Head Start (1968-1969)	Entry: 4 years Exit: 5 years Last follow-up: Post high school	T > C for achievement tests T = C for special education at grade 7 T = C for grade repetition at grade 7	High attrition during treatment Not randomized.
Harlem Training Project (1966-1967)	Entry: 2-3 years Exit: 4 years Last follow-up: Grade 7	T > C* for (math) achievement T < C* for (reading) achievement T > C* for grade repetition at grade 7	Not randomized
High/Scope Perry Preschool Project (1962-1967)	Entry: 3-4 years Exit: 5 years Last follow-up: Post high school	T > C* for achievement tests T > C* for grades completed T = C for special education at grade 12 T = C for grade repetition at grade 12 T > C* for high school graduation T = C for post secondary education at age 27 T < C* for arrest at age 27 T > C* for employment at age 19 T = C for employment at age 27 T > C* for monthly earnings T < C* for receiving public assistance at age 27	
Harvard University Project (1964-1966)	Entry: 3 years Exit: 5 years Last follow-up: Grade 4	T = C for grade repetition	
Institute for Developmental Studies (1963-1967)	Entry: 4 years Exit: 9 years Last follow-up: Grade 7	T = C for special education T = C for grade repetition	More than 80% attrition by the time of follow-up
Philadelphia Project (1963-1964)	Entry: 4 years Exit: 5 years Last follow-up: Post high school	T = C for achievement tests T = C for special education T = C for grade repetition	Not randomized
Verbal interaction Project (1967-1972)	Entry: 2-3 years Exit: 4 years Last follow-up: Grade 7	T > C* for achievement tests T > C* for special education at grade 7 T = C for grade repetition at grade 7	

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